

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	045-288	1	17

Plotting Date: 12/31/2020

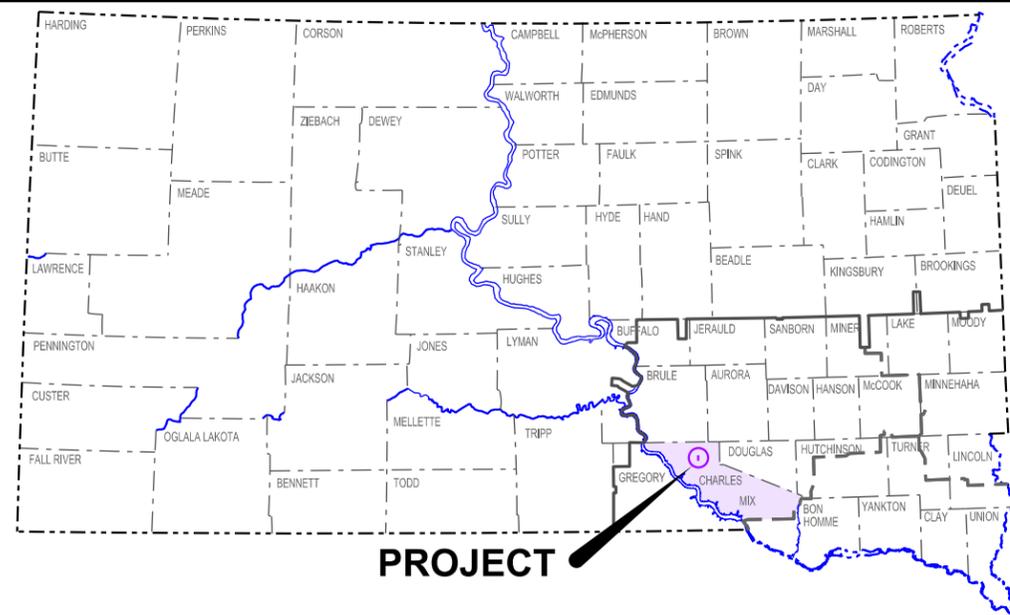
PLANS FOR PROPOSED
PROJECT 045-288
SD HIGHWAY 45
CHARLES MIX COUNTY

INDEX OF SHEETS

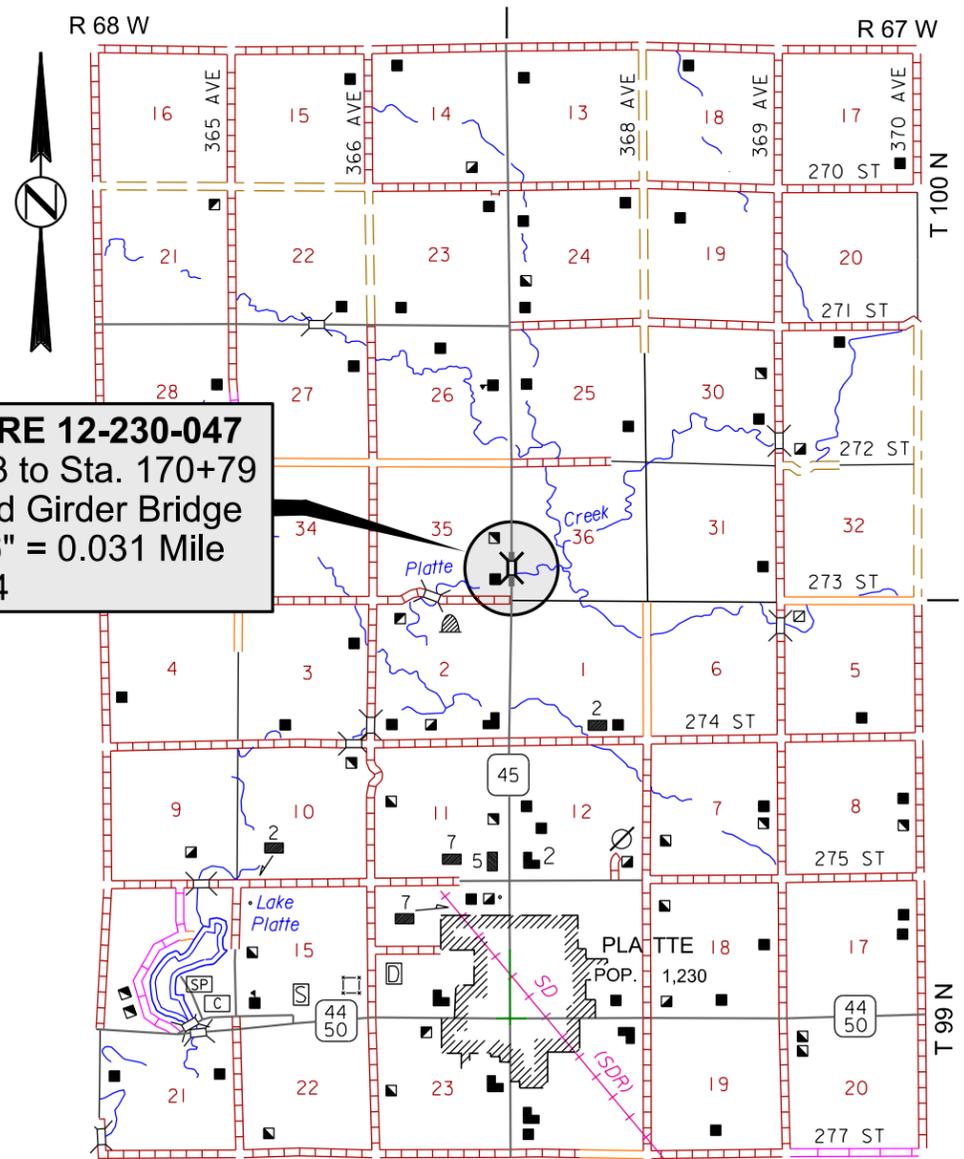
Sheet 1	Layout Map & Index of Sheets
Sheet 2	Estimate of Quantities & Plan Notes
Sheet 3	Environmental Commitments
Sheets 4 - 6	Traffic Control Standard Plates
Sheets 7 - 9	Remove and Replace Surfacing
Sheets 10 - 16	Bridge Work at Structure 12-230-047
Sheet 17	Standard Plate for Curb & Gutter

STRUCTURE APPROACH REPAIR -
REMOVE & REPLACE STEEL PLATE, PAVING NOTCH,
ASPHALT CONCRETE AND CURB & GUTTER,
REMOVE & RESET GUARDRAIL
PCN I67N

PLOT SCALE - 1" = 7000'



PROJECT



STRUCTURE 12-230-047
Sta. 169+13 to Sta. 170+79
Prestressed Girder Bridge
166'-0 3/16" = 0.031 Mile
MRM 30.24

STORM WATER PERMIT
(None required)

ADT (2019) 1,094

PLOTTED FROM - TRMLINT15

FILE - ... \CHMIX167N\TITLE167N.DGN

PLOT NAME - 1

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	16	Ft
110E1010	Remove Asphalt Concrete Pavement	28.0	SqYd
110E1640	Remove Granular Material	2.8	CuYd
110E6410	Remove Type 1 MGS for Reset	50.0	Ft
260E1010	Base Course	5.0	Ton
320E1200	Asphalt Concrete Composite	10.0	Ton
380E6110	Insert Steel Bar in PCC Pavement	8	Each
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
460E0070	Class A45 Concrete, Bridge Repair	2.0	CuYd
460E0300	Breakout Structural Concrete	2.0	CuYd
460E0380	Install Dowel in Concrete	36	Each
480E0200	Epoxy Coated Reinforcing Steel	74	Lb
630E5010	Reset Type 1 MGS	50.0	Ft
634E0010	Flagging	40.0	Hour
634E0020	Pilot Car	20.0	Hour
634E0110	Traffic Control Signs	195.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0600	4" Temporary Pavement Marking Tape Type I	144	Ft
634E0640	Temporary Pavement Marking	2,200	Ft
650E4360	Type D46 Concrete Curb and Gutter	16	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

SURFACING THICKNESS DIMENSIONS

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

WATER FOR COMPACTION

Cost for water for compaction of the Base Course will be incidental to the contract unit prices for the various contract items. The moisture required at the time of compaction will be 6%± unless otherwise directed by the Engineer.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will be as per the Specifications; however the Contractor may elect to obtain mix from a hot plant producing asphalt concrete for the SDDOT in accordance with Class Q2, Q2R, Q3, Q3R, Q4 or Q4R hot mixed asphalt concrete specifications. Mineral Aggregate for Class Q2, Q2R, Q3, Q3R, Q4 or Q4R Hot Mixed Asphalt Concrete will conform to the requirements of the Special Provision for Gyrotory Controlled Quality Control/Quality Assurance Hot Mixed Asphalt Concrete Pavement. Testing requirements for the mineral aggregate will be in accordance with Class E specifications.

If the asphalt mixture used on the project is a Class Q2, Q2R, Q3, Q3R, Q4 or Q4R Asphalt concrete from another project the job-mix formula for the mix will apply, but the testing will be in accordance with the SDDOT requirements for the Asphalt Concrete Composite Specification.

Asphalt for Prime will not be required.

Asphalt for Tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.06 gallon per square yard on primed base course or new asphalt concrete pavement. The Asphalt for Tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite and on the vertical face of the curb & gutter.

CONCRETE CURB AND GUTTER

Existing concrete curb and gutter will be removed and replaced as detailed in these plans.

Curb and Gutter will be tied to existing curb and gutter with drilled in No. 5 epoxy coated deformed tie bars as detailed in these plans. Steel bars will conform to Section 1010.

Cost for this work will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

The Contractor will satisfactorily restore disturbed areas adjacent to the new concrete curb and gutter to the satisfaction of the Engineer. Cost for this restoration work will be incidental to the contract unit prices for the various items.

RESETTING GUARDRAIL

Existing guardrail adjacent to replacement area will need to be removed & reset.

The Contractor will satisfactorily restore disturbed areas adjacent to the guardrail to the satisfaction of the Engineer. Cost for this restoration work will be incidental to the contract unit prices for the various items.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

TRAFFIC CONTROL SIGNS

Sufficient traffic control devices have been included in these plans to sign one two lane highway lane closure.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking for stop bars will consist of 4" temporary pavement marking tape type I. Placement of each 24" white stop bar will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop bars which is an equivalent of approximately 144' of 4" tape (1 workspace at 144' = 144'). Temporary pavement marking on centerline will consist of temporary flexible vertical markers (tabs) or temporary raised pavement markers and will be used as depicted on standard plate 634.25 when the stop condition must remain in place during nighttime hours, 9:00 pm to 6:00 am (Estimate 1 workspace remaining during nighttime hours x 2,200' per workspace = 2,200').

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
W1-3	REVERSE TURN (L or R)	1	48" x 48"	16.0	16.0
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			195.4

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating: No Dumping Allowed.
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste must be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

Cost associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

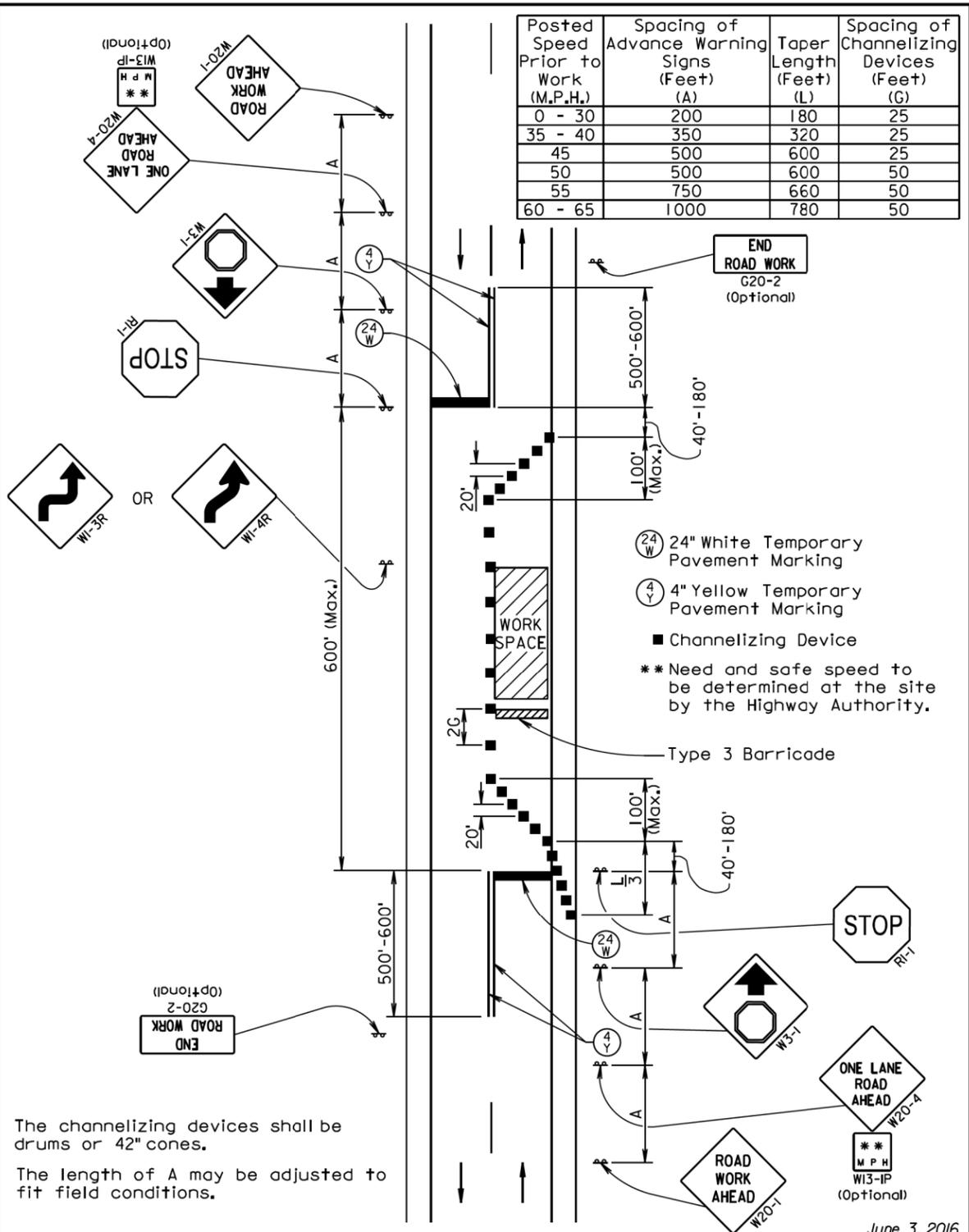
The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow 30 Days from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease, and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

Plotting Date: 12/31/2020

PLOT SCALE - 1:200.64

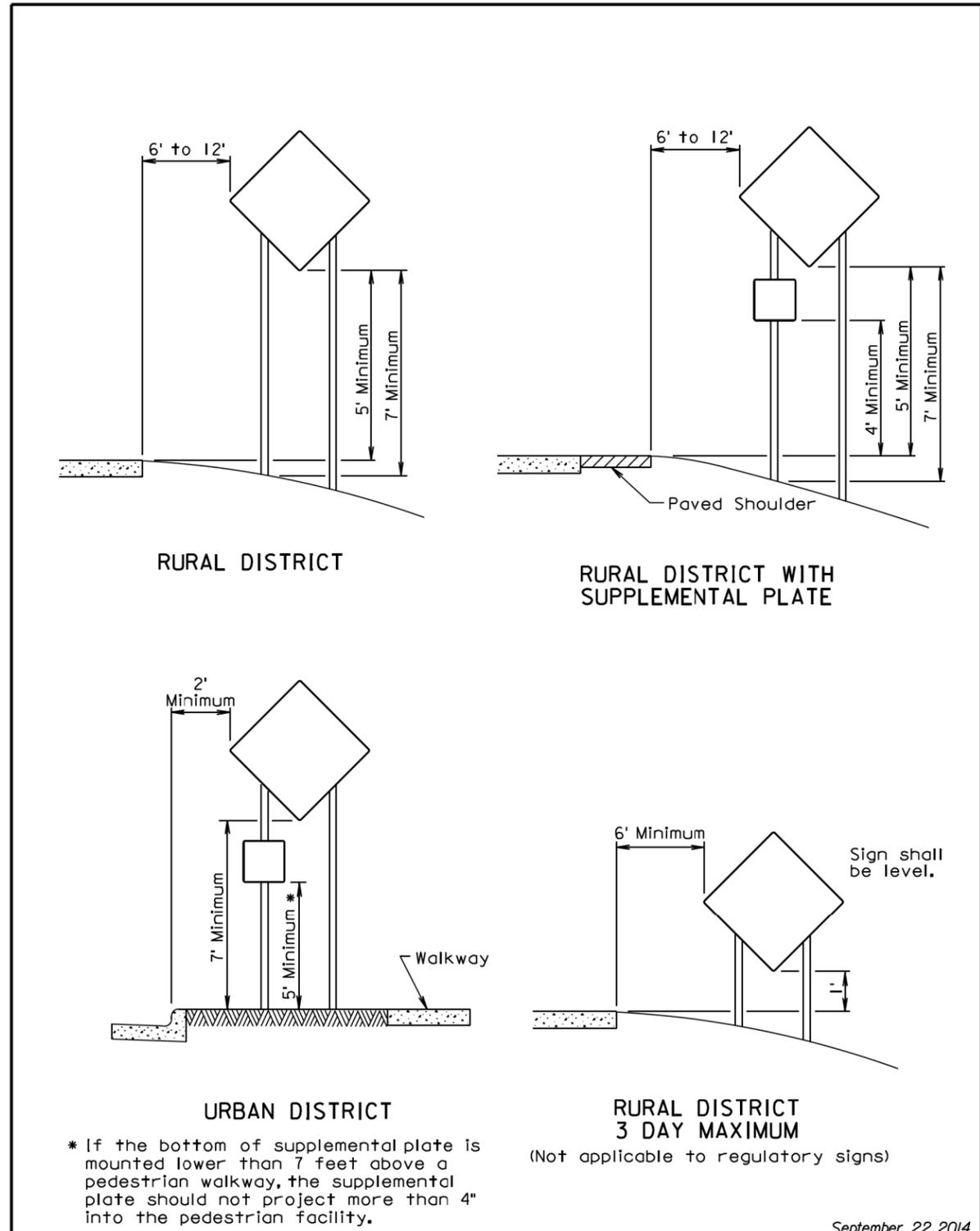


The channelizing devices shall be drums or 42" cones.
 The length of A may be adjusted to fit field conditions.

June 3, 2016

SDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
	Published Date: 4th Qtr. 2020	Sheet 1 of 1

PLOT NAME - 2

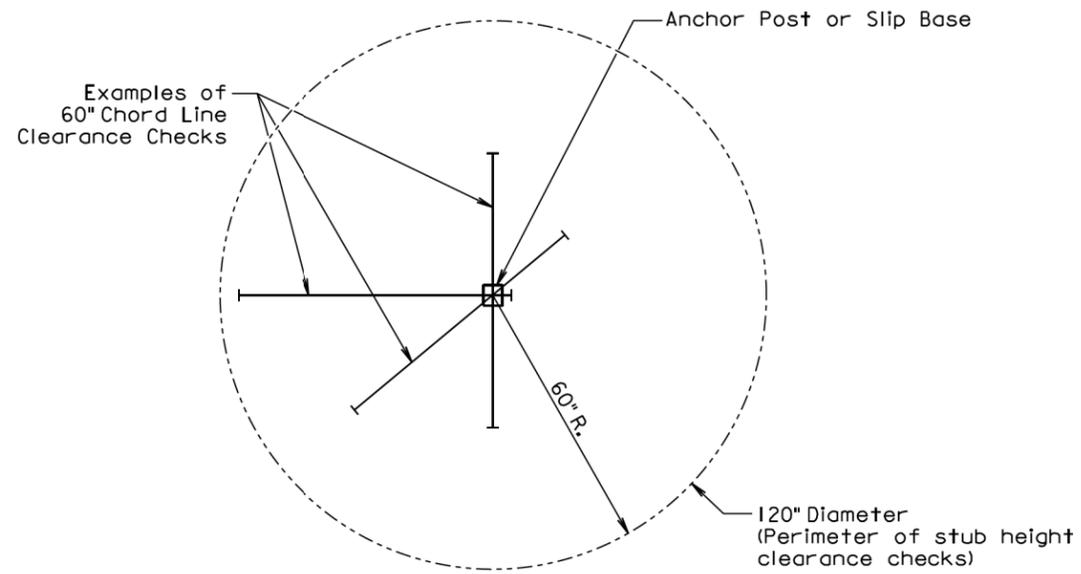


September 22, 2014

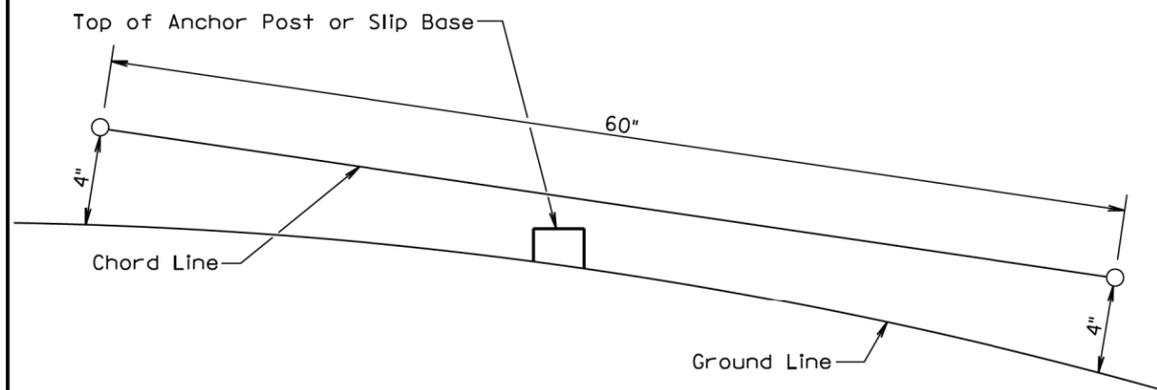
SDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
	Published Date: 4th Qtr. 2020	Sheet 1 of 1

PLOTTED FROM - TRMLINT15

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PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1

Published Date: 4th Qtr. 2020

REMOVE & REPLACE SURFACING

STRUCTURE 12-230-047 SD45 MRM 30.24

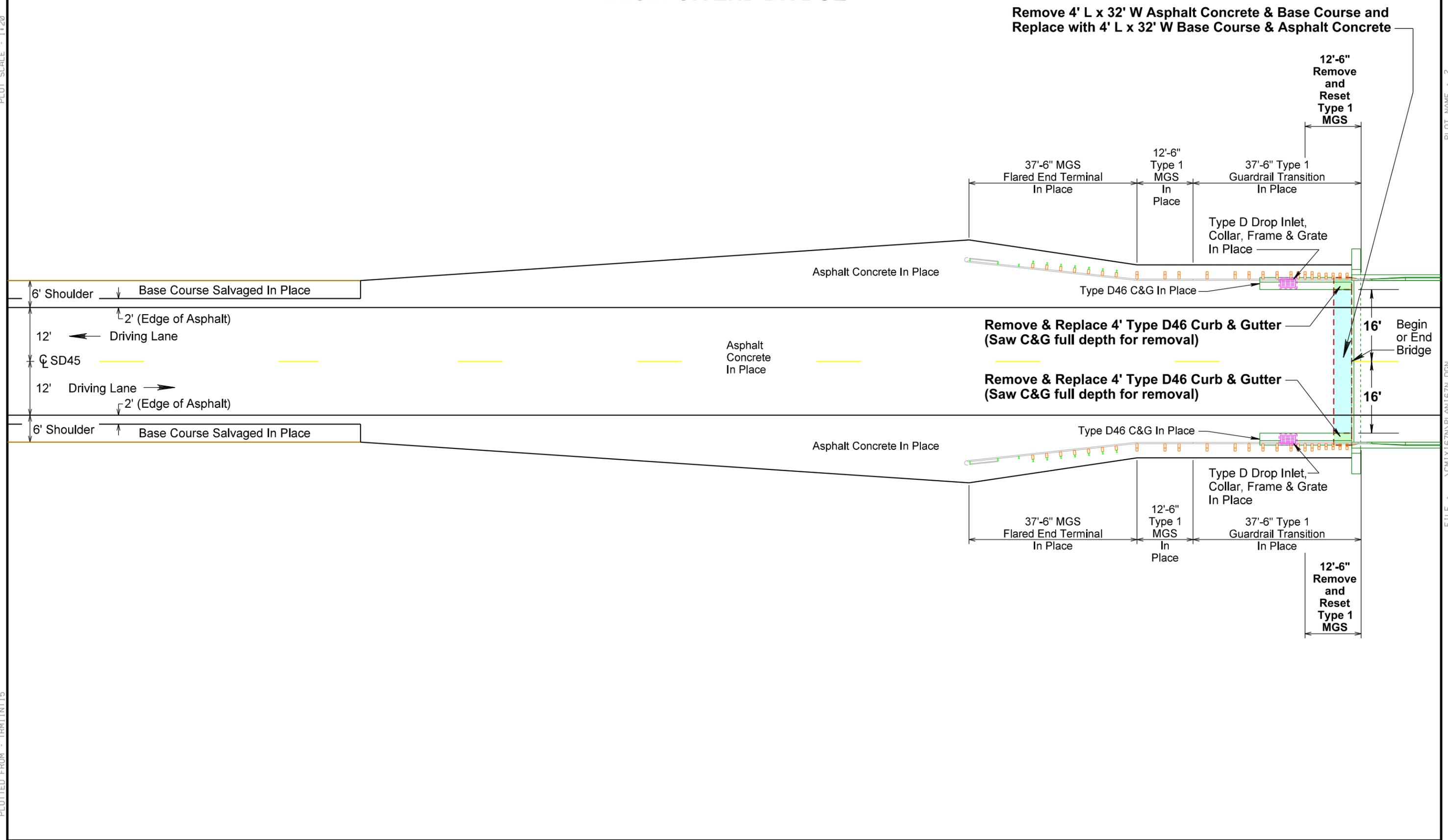
BEGIN OR END BRIDGE

STATE OF SOUTH DAKOTA	PROJECT 045-288	SHEET 7	TOTAL SHEETS 17
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Plotting Date: 12/31/2020

PLOT SCALE - 1:20

PLOT NAME - 2



PLOTTED FROM - IRMLINT15

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REMOVE & REPLACE SURFACING

STRUCTURE 12-230-047 SD45 MRM 30.24
BEGIN OR END BRIDGE

STATE OF SOUTH DAKOTA	PROJECT 045-288	SHEET 8	TOTAL SHEETS 17
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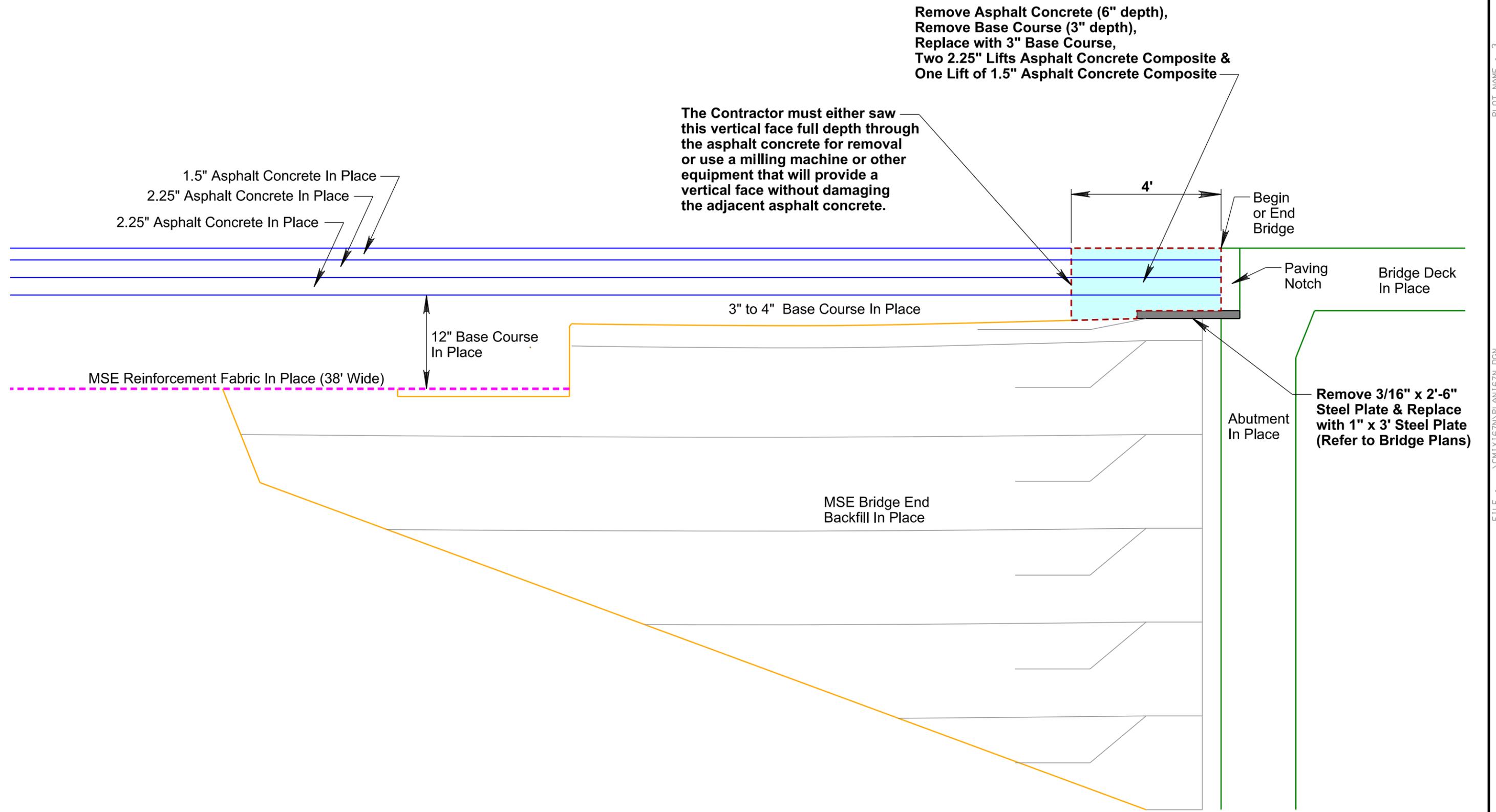
Plotting Date: 12/31/2020

PLOT SCALE - 1:20

PLOT NAME - 3

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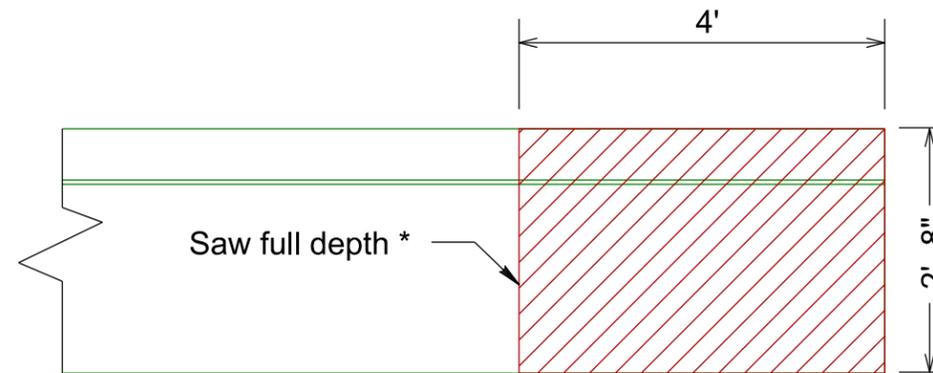


REMOVE & REPLACE CONCRETE CURB & GUTTER

STATE OF SOUTH DAKOTA	PROJECT 045-288	SHEET 9	TOTAL SHEETS 17
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Plotting Date: 12/31/2020

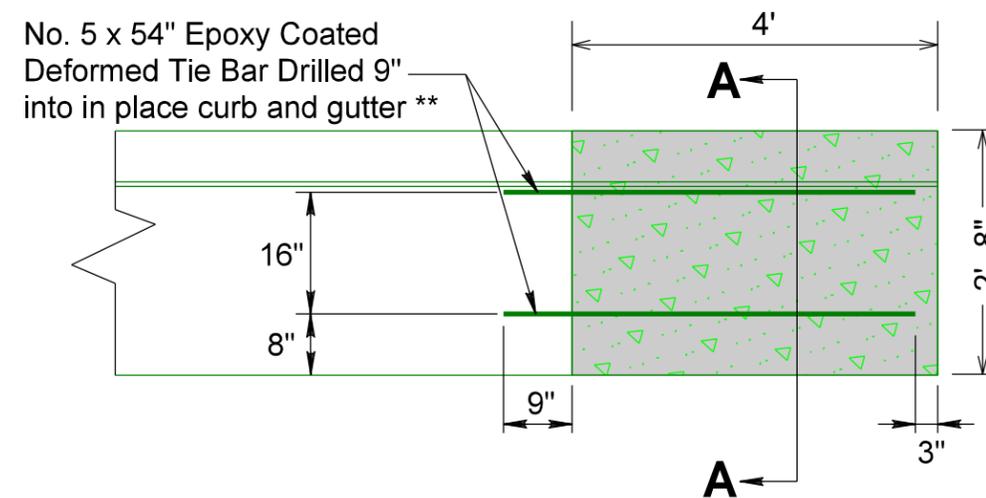
REMOVAL



Remove Concrete Curb and/or Gutter

* Cost for sawing will be incidental to the contract unit price per foot for Remove Concrete Curb and/or Gutter.

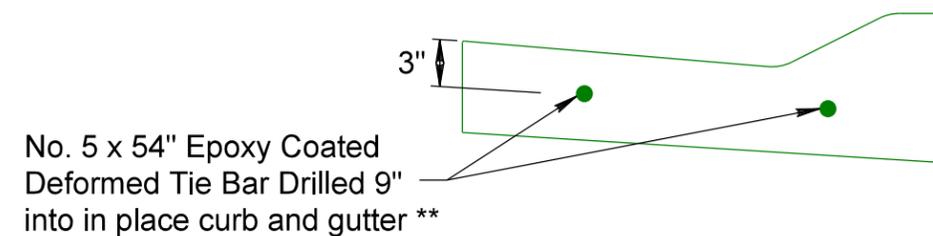
INSTALLATION



Class M6 Concrete

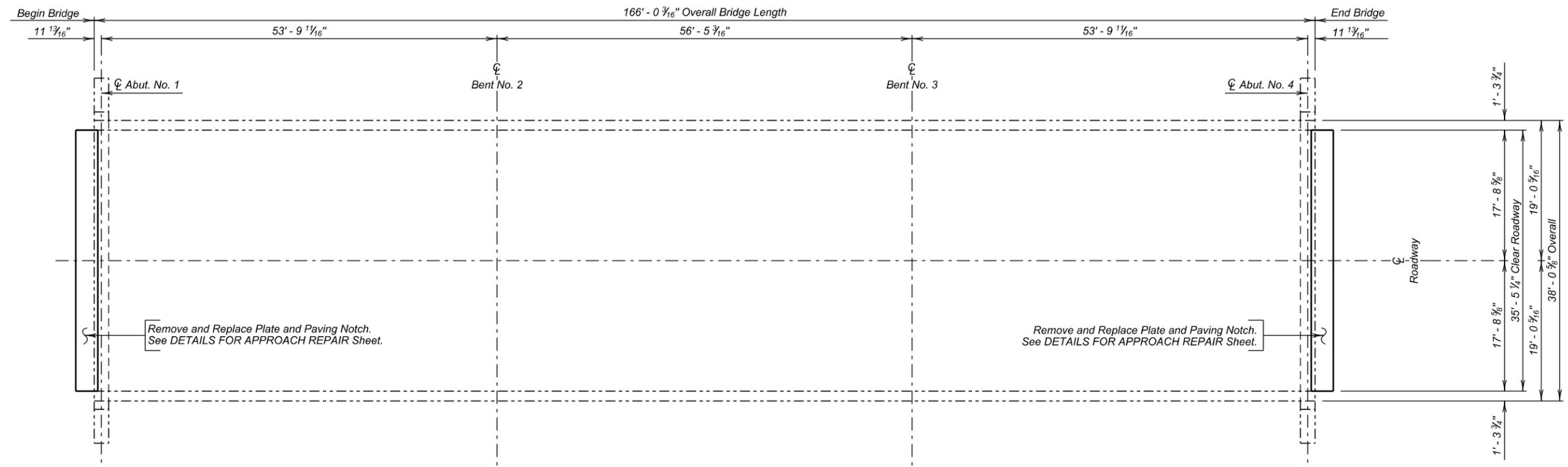
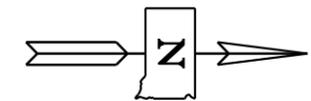
** Cost for this work will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

Sec. A-A



See standard plate for Type D46 Concrete Curb and Gutter for forming details.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	045-288	10	17



PLAN

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrade
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Details for Approach Repair
- Sheet No. 4 thru 7 - Original Construction Plans

LAYOUT FOR UPGRADE

FOR

166' - 0 $\frac{3}{16}$ " PRESTRESSED GIRDER BRIDGE

OVER PLATTE CREEK 0° SKEW
 STR. NO. 12-230-047 SEC. 35/36-T100N-R68W
 PCN i67N M 045-288

CHARLES MIX COUNTY
 S. D. DEPT. OF TRANSPORTATION

SEPTEMBER 2020

1 OF 7

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY TJM CMIXI67N	CK. DES. BY JH i67NRA01	DRAFTED BY KR <i>Steve A. Johnson</i>	BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
410E0030	Structural Steel Miscellaneous	Lump Sum	LS
460E0070	Class A45 Concrete, Bridge Repair	1.0	CuYd
460E0300	Breakout Structural Concrete	1.0	CuYd
460E0380	Install Dowel in Concrete	36	Each
480E0200	Epoxy Coated Reinforcing Steel	74	Lb

SPECIFICATIONS

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown elsewhere in the plans. Alternate sequence of operations may be submitted by the contractor for approval by the engineer a minimum of two weeks prior to the preconstruction meeting.

1. Remove the adjacent surfacing shown elsewhere in the plans and breakout the concrete paving notches for the first phase of construction.
2. Remove the existing plates, place expansion foam in the gap, and install the new plates for the first phase of construction.
3. Install new paving notch material and repair adjacent surfacing for the first phase of construction.
4. Switch traffic and repeat steps 1 to 3 for the second phase of construction.

GENERAL CONSTRUCTION - BRIDGE

1. All reinforcing steel will conform to ASTM A615, Grade 60.
2. Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
3. Requests for construction joints at points other than those shown, must be submitted to the Engineer for prior approval.

INSTALLING DOWELS IN CONCRETE

1. Holes drilled in the existing concrete will be true and normal or as shown in the plans. Drilling holes using a core drill will not be allowed. Care will be taken not to damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the original construction plans may have been placed out of position during original construction. Therefore, prior to the start of drilling any holes in the concrete, an effort will be made by Department forces to mark on the concrete surface where practical any locations of the in-place reinforcing steel. In spite of this precaution, the Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the Engineer to miss the existing reinforcing steel. If the Contractor shifts the dowel spacing, the unused drill holes will be completely filled with the epoxy resin as approved by the Engineer.
2. The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV (Equivalent to ASTM C881, Type IV). Grade 1, 2 or 3 may be used for vertical dowels.
3. The diameter of the drilled holes will not be less than 1/8 inch greater, nor more than 3/8 inch greater than the diameter of the dowels or as per the Manufacturer's recommendations. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.
4. Mix epoxy resin as recommended by the manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping or painting method will not be allowed.
5. No loads will be applied to the epoxy grouted dowel bars until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.
6. Dowels will be threaded rod conforming to ASTM F1554, Grade 36.
7. The cost of epoxy resin, dowels, installation and other incidental items will be incidental to the contract unit price per each for Install Dowel in Concrete.

CONCRETE BREAKOUT

1. This work will consist of removing material from the existing paving notch, removing the existing plate and nuts.
2. All broken out and removed material will be disposed of by the Contractor. Disposal of discarded material will be in accordance with the Environmental Commitments shown elsewhere in the plans.
3. The cost of removing and disposing of the existing paving notch material and plate will be incidental to the contract unit price per cubic yard for Breakout Structural Concrete.

CONCRETE REPAIR

The top portion of the void will be filled with a general-purpose spray foam of sufficient amount to create a level surface for the plate to set on and not fall into the gap. The cost for the foam material and placement will be included in the contract unit price per cubic yard for Class A45 Concrete, Bridge Repair.

STRUCTURAL STEEL CONCRETE REPAIR

The nuts and washer will be per section 410 of the Construction Specification.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
166' 0 ³/₁₆" PRESTRESSED GIRDER BRIDGE

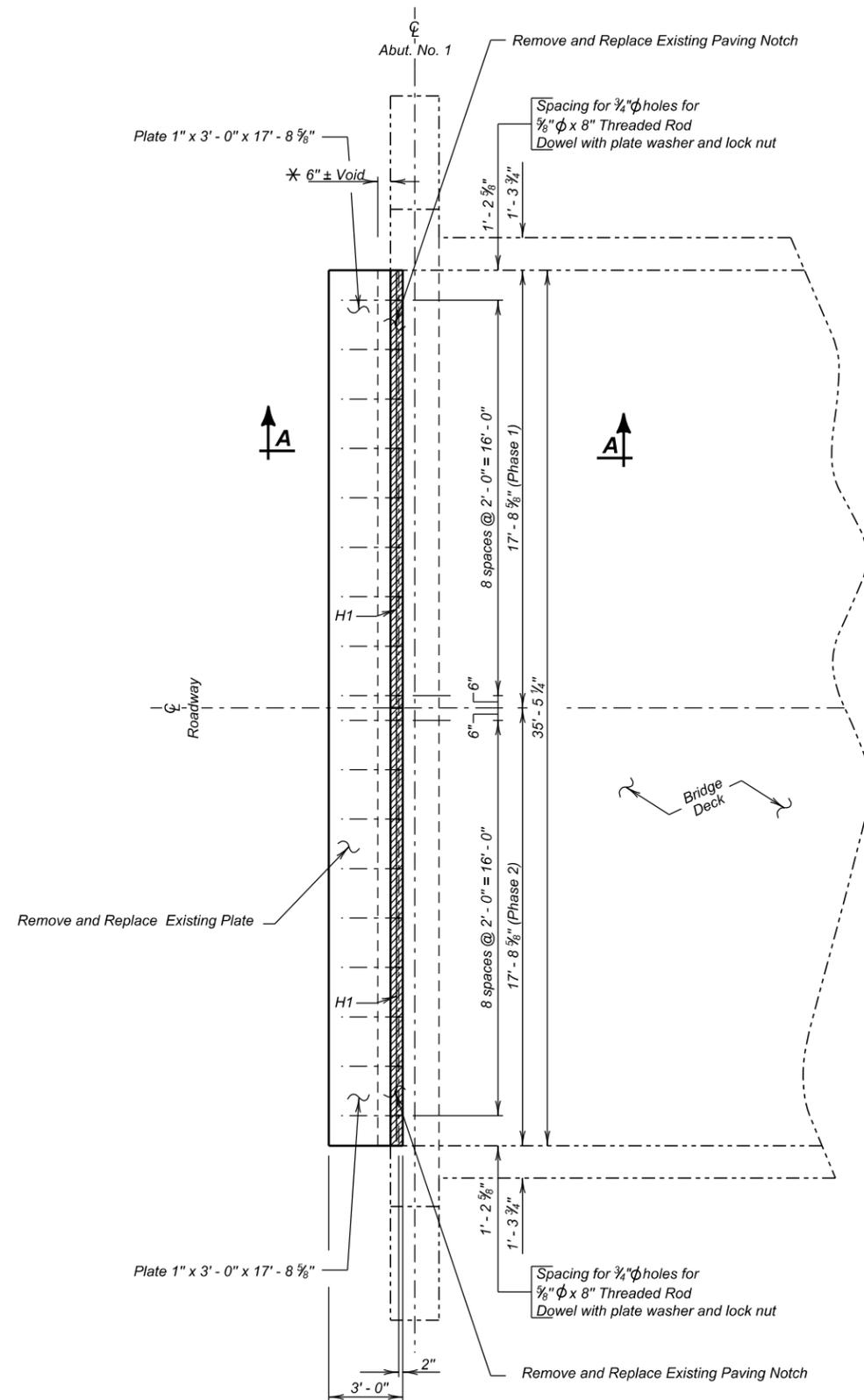
STR. NO. 12-230-047
SEPTEMBER 2020

2 OF 7

REINFORCING SCHEDULE
(For Both Ends of Bridge)

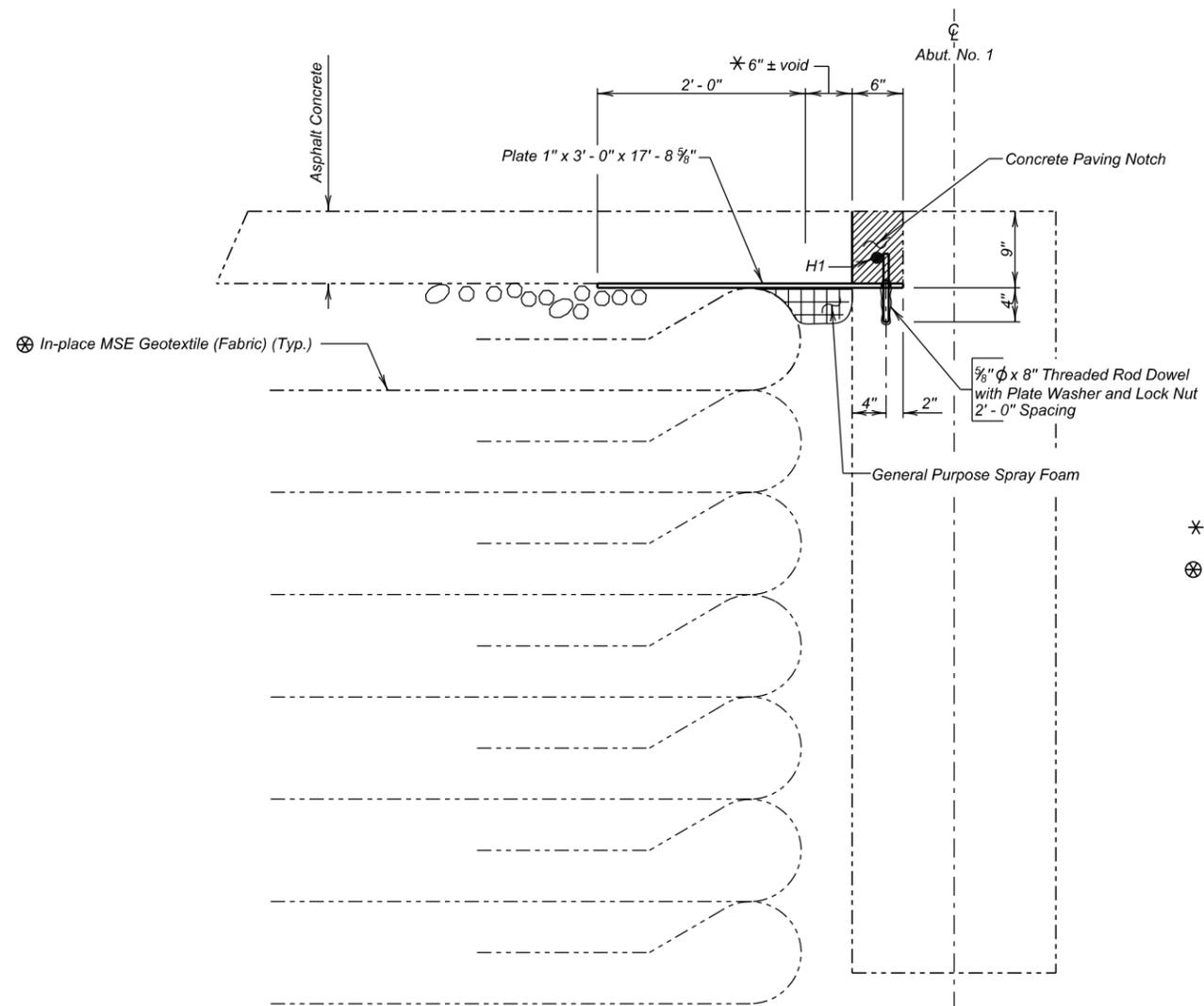
Mk.	No.	Size	Length	Type	Phase
H1	2	5	17' - 4"	Str.	1
H1	2	5	17' - 4"	Str.	2

NOTE:
All Bars to be Epoxy Coated.



PLAN

(Abut. No. 1 Shown. Abut. No. 4 similar by opposite hand.)



SECTION A - A

LEGEND:

Shaded areas indicate limits of Concrete Breakout and Concrete Bridge Repair.

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Structural Steel Miscellaneous	LS	Lump Sum	Lump Sum
Class A45 Concrete, Bridge Repair	CuYd	0.5	0.5
Breakout Structural Concrete	CuYd	0.5	0.5
Install Dowel in Concrete	Each	18	18
Epoxy Coated Reinforcing Steel	Lb	37	37

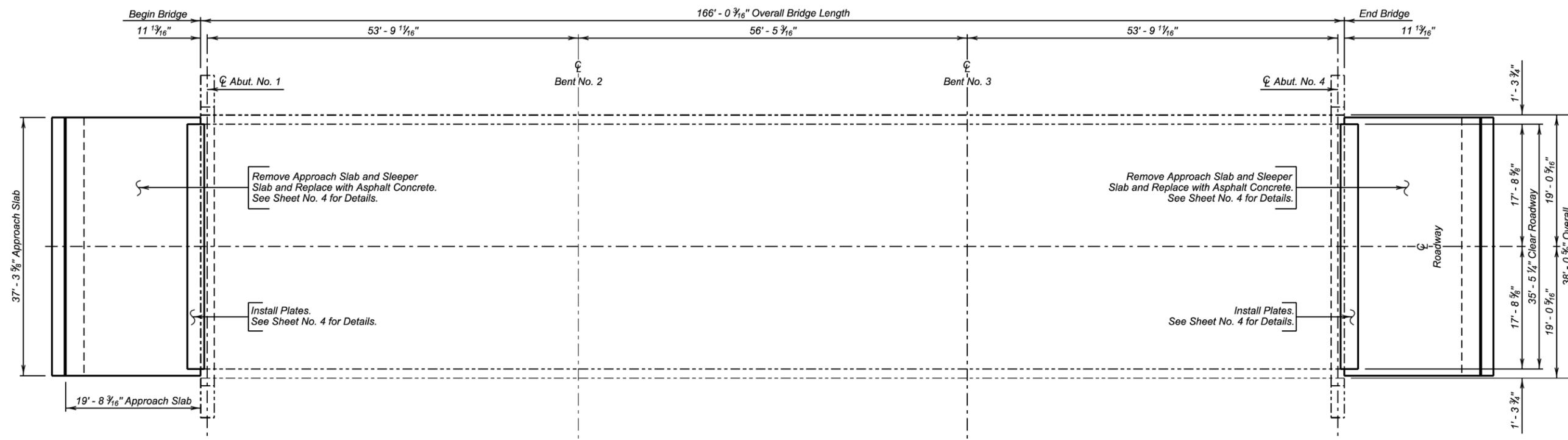
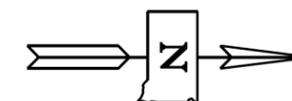
∅ For informational purposes only, the estimated total structural steel quantity is:

PHASE 1 PHASE 2
4341 Lb. 4341 Lb.

* If the gap is larger than 18" contact the office of Bridge Design.
⊗ The top layer of fabric is to be inspected for damage and the condition approved by the Engineer.

DETAILS FOR APPROACH REPAIR
FOR
166' - 0 3/16" PRESTRESSED GIRDER BRIDGE
OVER PLATTE CREEK 0° SKEW
STR. NO. 12-230-047 SEC. 35/36-T100N-R68W
M 045-288

CHARLES MIX COUNTY
S. D. DEPT. OF TRANSPORTATION
SEPTEMBER 2020



PLAN

ORIGINAL CONSTRUCTION PLANS

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrade
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes Continued
- Sheet No. 4 - Details for Approach Slabs
- Sheet No. 5 thru 9 - Original Construction Plans

LAYOUT FOR UPGRADE

FOR

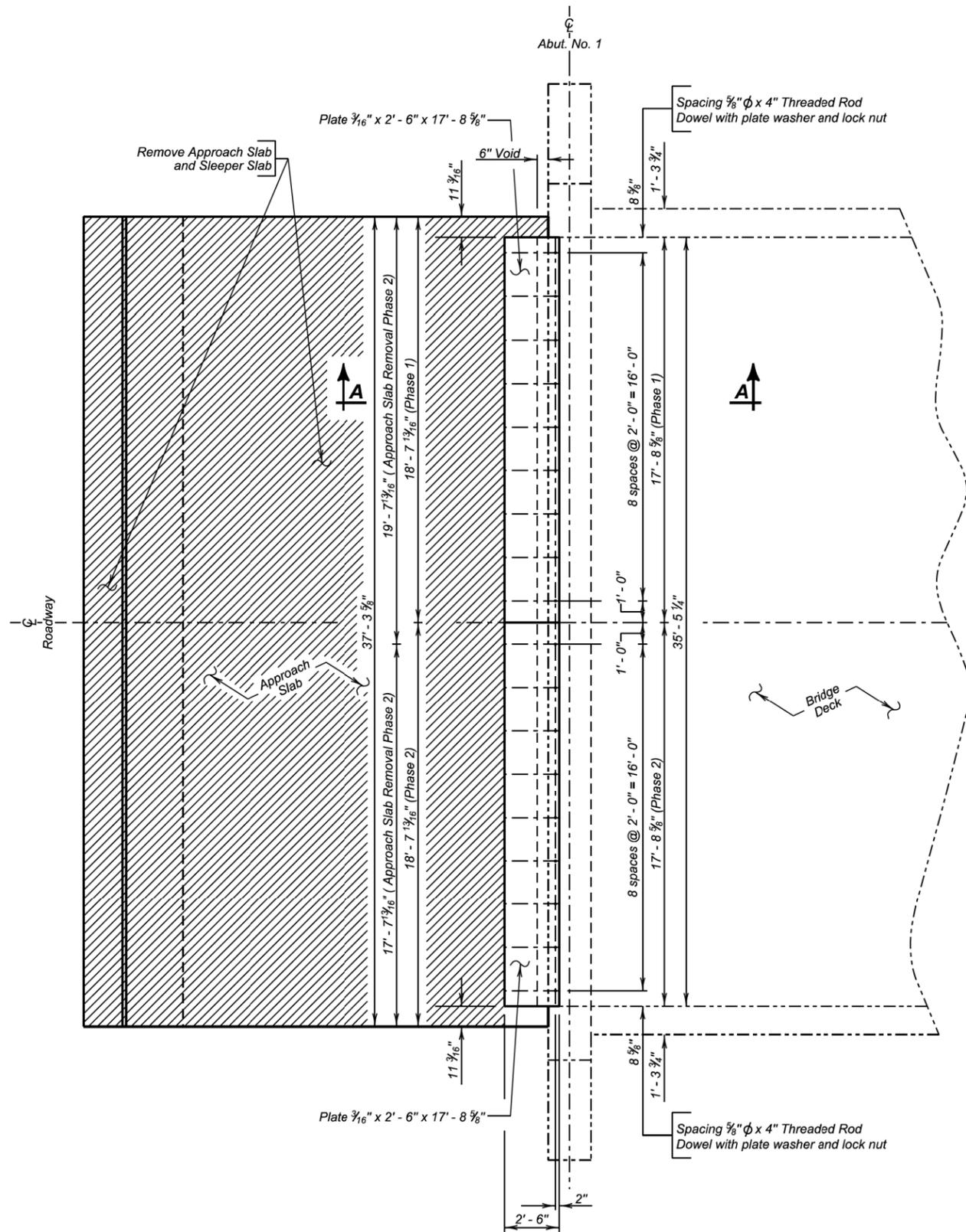
166' - 0 3/16" PRESTRESSED GIRDER BRIDGE
 OVER PLATTE CREEK 0° SKEW
 STR. NO. 12-230-047 SEC. 35/36-T100N-R68W
 PCN 04WY P 0045(54)27

CHARLES MIX COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JUNE 2017

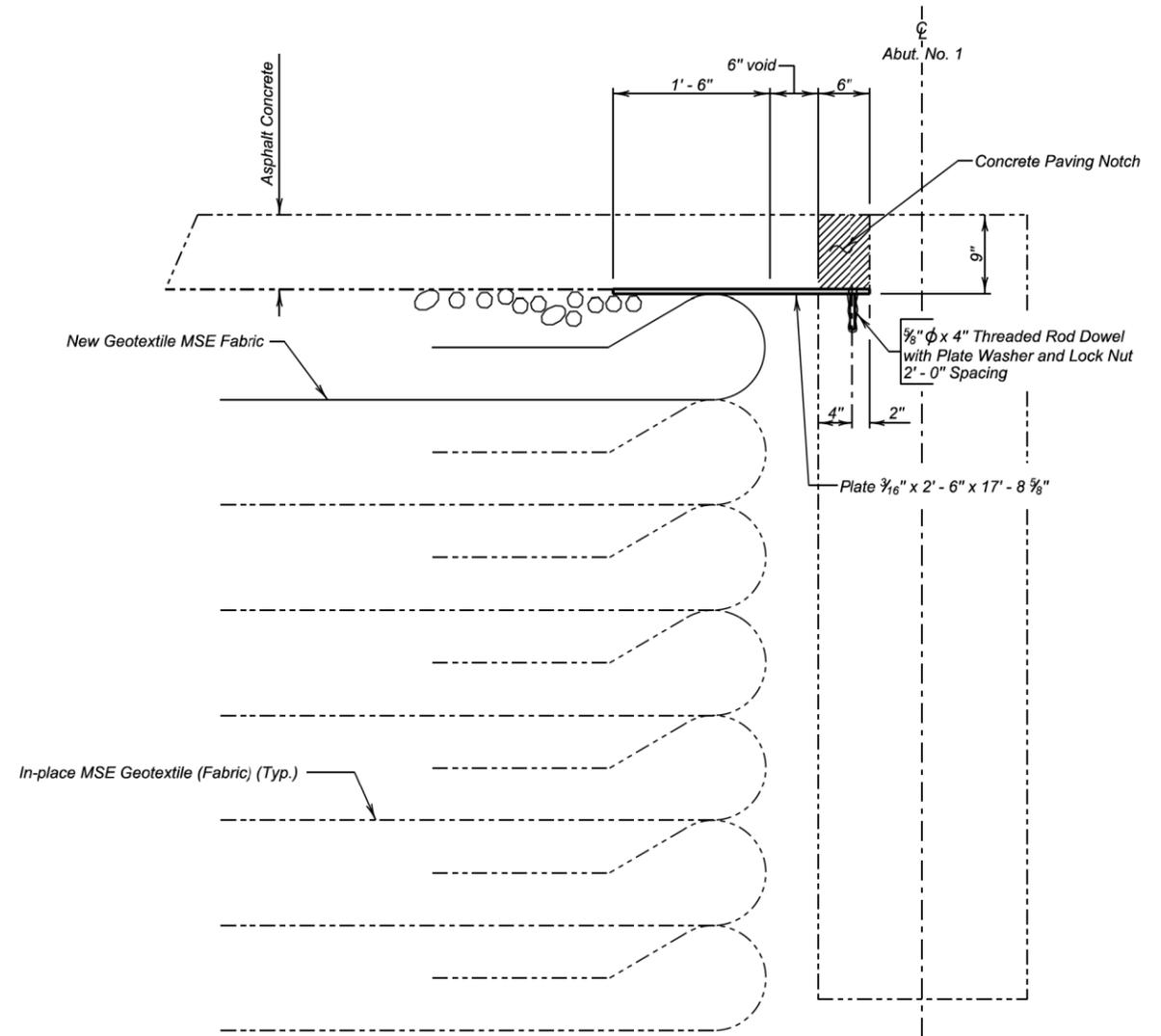
4 OF 7

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY MM	CK. DES. BY JH	DRAFTED BY KR	<i>Steve A. Johnson</i> BRIDGE ENGINEER
CMX04WY	04WYR01		



PLAN
(Abut. No. 1 Shown. Abut. No. 4 similar by rotation.)



SECTION A - A

ORIGINAL CONSTRUCTION PLANS

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Structural Steel Miscellaneous	LS	Lump Sum	Lump Sum
Remove Concrete Approach Slab	Sq. Yd.	41.4	41.4
Install Dowel in Concrete	Each	17	17
Reinforced Fabric (MSE)	Sq. Yd.	43.5	43.5
Concrete Patching Material, Bridge Deck	Cu. Ft.	8.1	8.1

For informational purposes only, the estimated total structural steel quantity is:

PHASE 1	PHASE 2
339 Lb.	339 Lb.

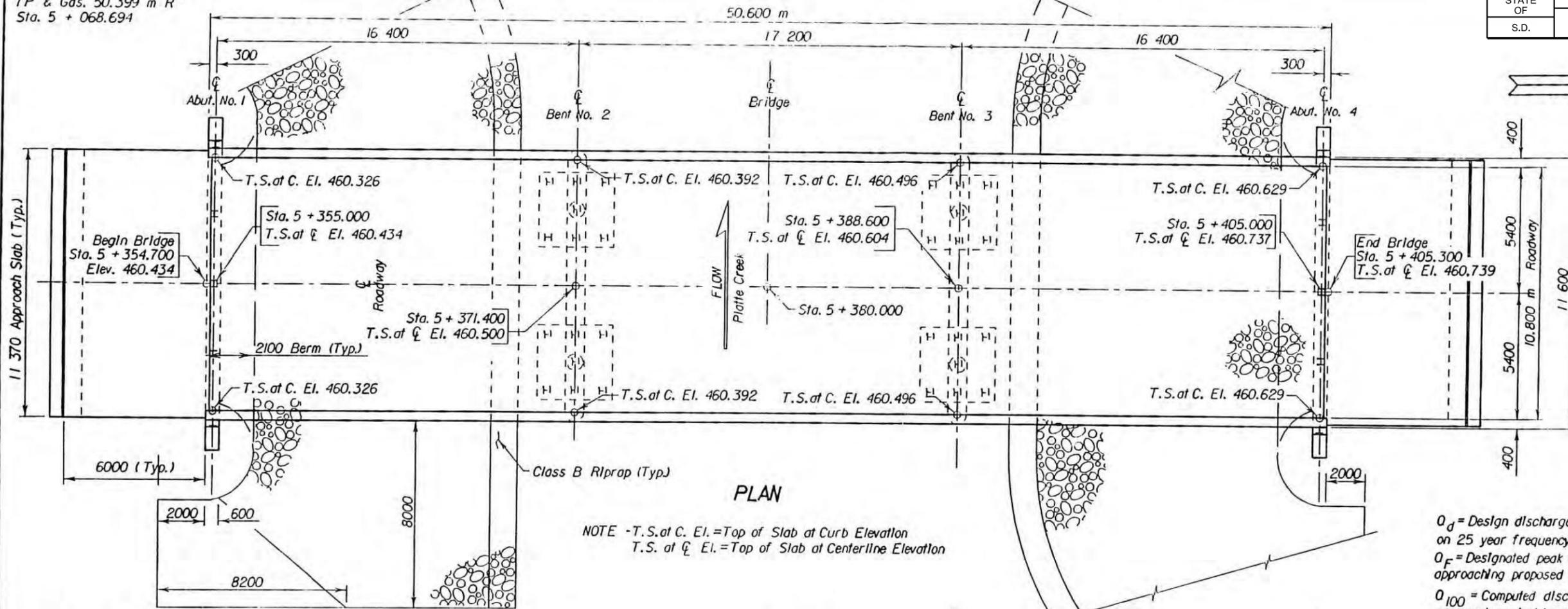
DETAILS FOR APPROACH SLABS

FOR
166' - 0 3/16" PRESTRESSED GIRDER BRIDGE
OVER PLATTE CREEK 0° SKEW
STR. NO. 12-230-047 SEC. 35/36-T100N-R68W
P 0045(54)27

CHARLES MIX COUNTY
S. D. DEPT. OF TRANSPORTATION
JUNE 2017 **5** OF **7**

IP & Gds. 50.399 m R
Sta. 5 + 068.694

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	045-288	15	17



B.M. #20 Elev. 468.035
IP & Gds. 41.483 m R
Sta. 5 + 707.022

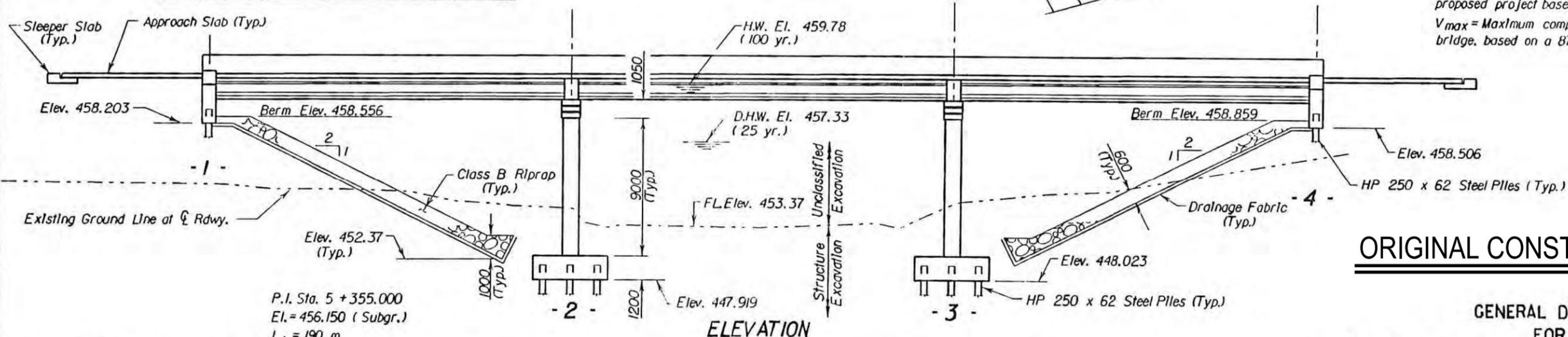
HYDRAULIC DATA

Q_d	226.6 m ³ /s
A_d	101.7 m ²
V_d	2.23 m/s
Q_F	226.6 m ³ /s
Q_{100}	583.0 m ³ /s
V_{max}	4.01 m/s

Q_d = Design discharge for the proposed bridge based on 25 year frequency. El. 457.33
 Q_F = Designated peak discharge for the basin approaching proposed project based on 25 year frequency.
 Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 459.78
 V_{max} = Maximum computed velocity for the proposed bridge, based on a 87 year frequency.

PLAN

NOTE - T.S. at C. El. = Top of Slab at Curb Elevation
T.S. at ζ El. = Top of Slab at Centerline Elevation



ELEVATION

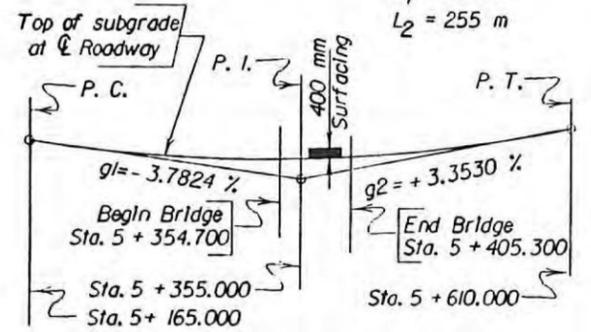
ORIGINAL CONSTRUCTION PLANS

GENERAL DRAWING

FOR
50.600 m PRESTRESSED GIRDER BRIDGE
 10.8 m ROADWAY SEC. 35/36-T100N-R68W
 OVER PLATTE CREEK 0° SKEW
 STA. 5 + 354.700 TO STA. 5 + 405.300 P 0045119127
 STR. NO. 12-230-047 MS22.5
 PCEMS NO. 2747 (& ALT.)

CHARLES MIX COUNTY
 S. D. DEPT. OF TRANSPORTATION

NOVEMBER 1997 (6) OF (7)



VERTICAL CURVE DATA

-X081- INDEX OF BRIDGE SHEETS-

- Sheet No. 1 - General Drawing
- Sheet No. 2 - Estimate of Structure Quantities & Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Notes (Continued)
- Sheet No. 5 - Notes (Continued)
- Sheet No. 6 - Subsurface Investigation & Piling Layout
- Sheet No. 7 - Site Contour Map
- Sheet No. 8 - Abutment Details
- Sheet No. 9 - Bent Details
- Sheet No. 10 - Superstructure Details
- Sheet No. 11 - End Block and Barrier Curb Details
- Sheet No. 12 - Girder Details
- Sheet No. 13 - Erection Data and Slab Form Elevations
- Sheet No. 14 - Diaphragm Details
- Sheet No. 15 - Details of MSE Bridge End Backfill
- Sheet No. 16 - Details of Approach Slab Adj. to Bridge
- Sheet No. 17 - Approach Slab Joint Details
- Sheet No. 18 - Details of Standard Plate No. M460.10 & M510.40
- Sheet No. 19 - Details of Standard Plate No. M620.10 & M630.70

NOTE: All dimensions in these plans are millimeters (mm) unless otherwise noted. Stations and elevations are in meters.

-X081-

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
PC/DV	TB/SW	PC/DV	[Signature]

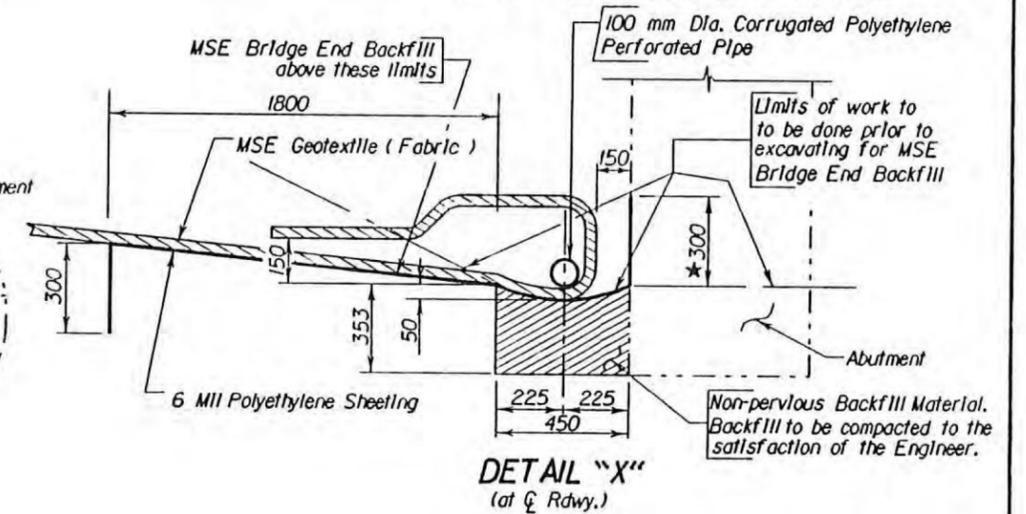
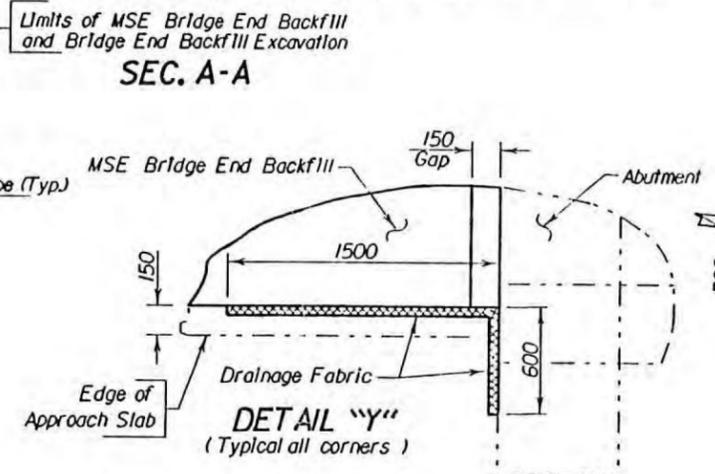
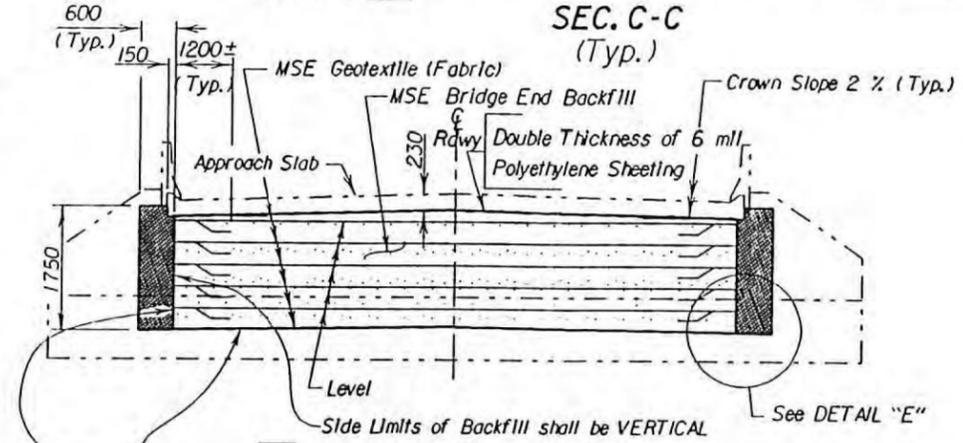
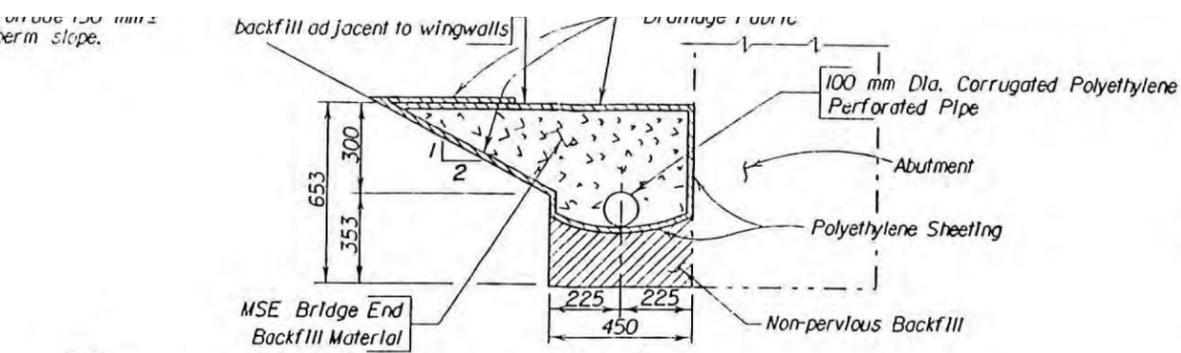
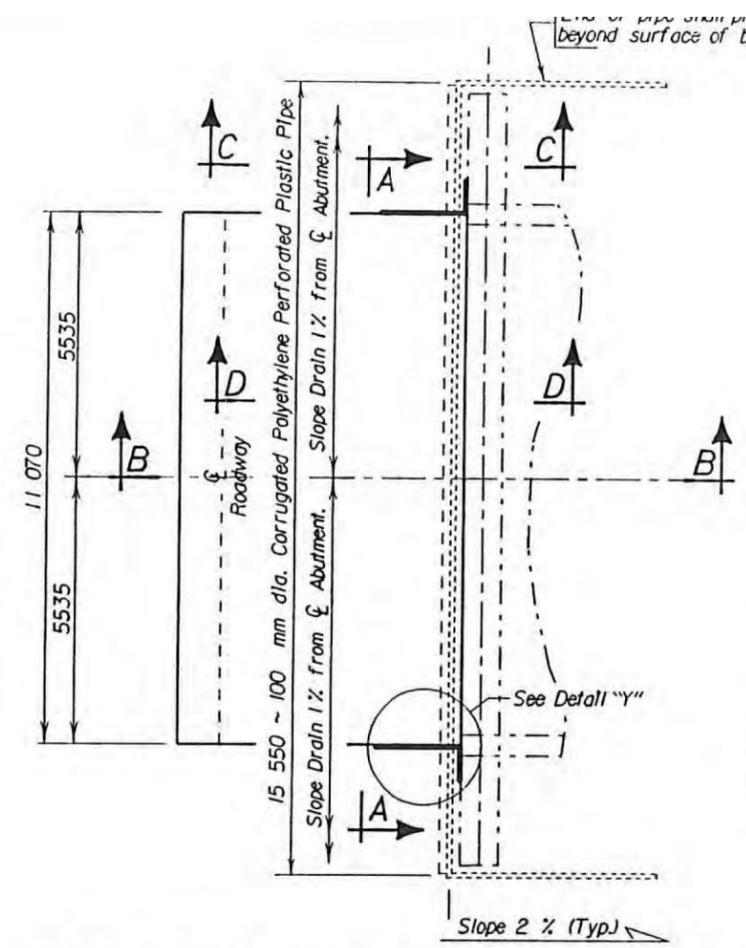
ESTIMATED QUANTITIES (for 2 abutments)		
ITEM	UNIT	QUANTITY
Underdrain/Pipe, Bridge End Backfill	m	42.7
Excavation, Bridge End Backfill	m ³	92
Backfill, MSE Bridge End	m ³	165
Fabric, Type B Drainage	m ²	41
Fabric, MSE Geotextile	m ²	1175

- 31.1 m 100 mm dia. Corrugated Polyethylene Perforated Plastic Pipe for 2 Abut.
- 5.6 m 100 mm dia. Corrugated Polyethylene Plastic Pipe for 2 Abut.
- 6.0 m 100 mm dia. Std. Black Steel Pipe for 2 Abut.
- 338.7 m² 6 mil Polyethylene Sheeting, not including laps.

Items 1 thru 4 are approximate quantities contained in the above bid items and are for information only.

⊕ Bridge End Backfill Excavation will not be measured. Plans quantity payment will be full compensation for this item.

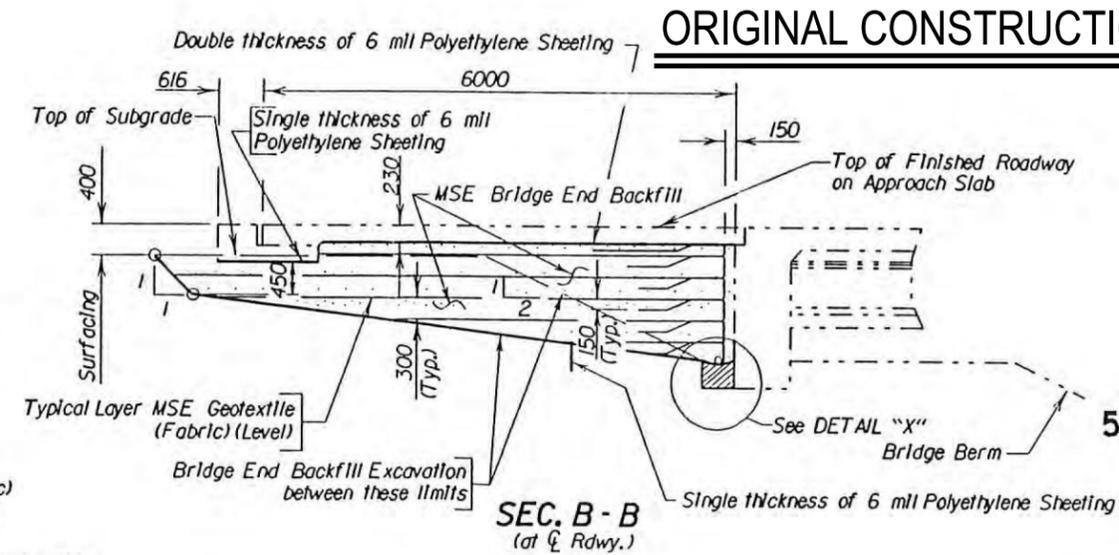
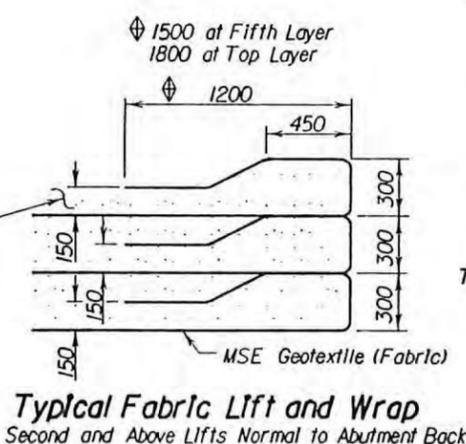
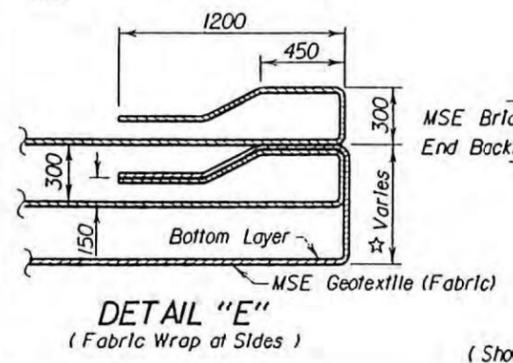
★ The polyethylene sheeting shall be attached to the back face of the abutment using a construction adhesive.



⊕ NOTE
Bridge End Backfill shown adjacent to Abut. No. 1 Abut. No. 4 will be similar by rotation.

NOTE
The Drainage Fabric shall be attached to the back side of the wingwall using a construction adhesive. The other end shall be attached between the side limits of excavation and the Reinforced Backfill material.

★ NOTE
At sides, re-embed bottom layer with second layer re-embedment fold. Where bottom layer extends past second layer, re-embed with third layer re-embedment fold.



Limits of work to be done prior to excavating for Bridge End Backfill

SEC. D-D (Typ.)

DETAILS OF MSE BRIDGE END BACKFILL FOR
50.600 m PRESTRESSED GIRDER BRIDGE
STR. NO. 12-230-047
NOVEMBER 1997

